

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A reproduced signal waveform processing apparatus, comprising:

a feedback loop comprising sampling means for sampling a reproduced signal at an interval of a reproducing clock signal generated at a predetermined oscillation frequency;

a first equalizer for equalizing a digital reproduced signal obtained by the sampling means;

phase frequency control means for detecting a phase error at a frequency between the digital reproduced signal equalized in the first equalizer and the reproducing clock signal, and outputting a control signal in accordance with phase frequency error information between the digital reproduced signal and the reproducing clock signal; and

oscillation means for varying a oscillation frequency in accordance with an instruction from the phase frequency control means,

wherein the feedback loop is a synchronization circuit that functions as a phase locked loop (PLL) for synchronizing frequency phase between the digital reproduced signal and the reproducing clock signal, and wherein the reproduced signal waveform processing apparatus further comprises a second equalizer connected in series with the first equalizer; and

a decimation filter provided between the first and the second equalizers for absorbing a difference in operating clocks of the first and the second equalizers, and a frequency divider for dividing the reproducing clock signal in the feedback loop and generating a

reproducing clock signal that is supplied to the second equalizer.

2. (Original) The reproduced signal waveform processing apparatus according to claim 1, wherein the second equalizer means comprises an adaptive equalizer having an automatic equalization function.

3. (Original) The reproduced signal waveform processing apparatus according to claim 1, wherein the first equalizer comprises an IIR filter.

4. (Original) The reproduced signal waveform processing apparatus according to claim 1, wherein the phase frequency control means comprises a FIR filter.

5. (Original) The reproduced signal waveform processing apparatus according to claim 1, wherein an operating clock of the feedback loop is operated at a frequency that is a multiplication of an operating clock of the second equalizer.

6. (Canceled)

7. (Original) The reproduced signal waveform processing apparatus according to claim 1, wherein the sampling means is an analog/digital converter.